DACW-33-87-D-0007 Delivery Order 0002 Wood Island Harbor Channel Biddeford, ME

OFFICE COPY DO NOT REMOVE

ATLANTIC TESTING LABORATORIES, LIMITED



Sustaining Member—N.Y.S. Society of Professional Engineers

Box 29 Canton, N.Y. 13617 (315) 386-4578

> Box 356 Cicero, N.Y. 13039 (315) 699-5281

January 11, 1988

U.S. Army Corps of Engineers New England Division 424 Trapelo Road Waltham, MA 02254-9194

Attn: Mr. Ron DeFilippo

Re: Wood Island Harbor Channel Biddeford, Maine Sampling of Bottom Material Contract DACW33-87-D-0007 Delivery Order No. 0002 ATL Report No. CD028-1-12-87

Gentlemen:

In accordance with Delivery Order No. 0002 dated 17 November 87, attached is one final copy of our Engineering Report for the subsurface investigation performed at Biddeford, Maine.

By copy of this letter we are also transmitting two copies of this report to the Chief of the Geotechnical Engineering Branch.

Do not hesitate to contact our office should you have any questions or comments.

Respectfully submitted,

Gregory R. Hargrave

Geologist

GRH/dh

attchs.

Section I

Sampling of Bottom Materials Wood Island Harbor Channel Biddeford, Maine

Contract DACW33-87-D-0007

Contracting Officer: Stanley J. Murphy, Lt. Colonel, CE, Deputy Division Engineer

17 November 1987

Delivery Order No. 0002

Prepared for: U.S. Army Corps of Engineers

New England Division 424 Trapelo Road

Waltham, MA 02254-9149

Prepared by: Gregory R. Hargrave

Atlantic Testing Laboratories, Limited

P.O. Box 29

Canton, New York 13617

Section 2 - Table of Contents

Section 2 - Table of Contents

SECTION :	1	Title Page
SECTION :	2	Table of Contents
SECTION	3	Scope of Investigation a. Delivery Order b. Project Site c. Purpose d. Scope of Work
SECTION		Quality Control a. General Certification Statement b. Records Taken c. Equipment Used d. Procedures
SECTION	5	Summary of Activities and Telephone Log Table I Daily Activity Log Table II Telephone Log
SECTION	6	Chain of Custody Log
SECTION	7	Safety Reports
SECTION	8	Field Inspector's Logs a. Figure 1 - General Project Map b. Figure 2 - Site Location Map c. Figure 3 - Probe/Sample Location Map d. Boring Log
SECTION	9	Other Records Taken

Section 3 - Scope of Investigation
a. Delivery Order No. 0002

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CONTINUATION SHEET

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2.2	Geotechnical Report	APPROX.	JOB	55% of Line l.l	* 184.80
6.1	Mobilization and Demobilization	1	JOB	1,100.00	1,000.00
6.2	Mileage from/to Waltham, MA	160	MI	1.15	184.00
6.5	Standby time/on Site Moves	8	HR	80.00	640.00
10.2	16 Ft. Boat	1	DAY	75.00	75.00
10.3	Operator for 16 Ft. Boat	1	DAY	280.00	280.00
10.4	Standby Time	8	HR	35.00	280.00
10.6	320 Sq. Ft. Float	1	ЈОВ	950.00	950.00
10.7	Mobilization and Demobilization for 320 Sq. Ft. Float	1	JOB	1,200.00	1,200.00
14.1	Drive Sample Boring, uncased hole	5	FT	25.00	125.00
18.1	Drive/Pull Casing, BX, NX Size	5	FT	20.00	100.00
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ATTACHMENT NO. 1

GEB REQUISITION 88-8 - DACW 33-87-D-0007

DELIVERY ORDER NO. 2

EXPLORATION INSTRUCTIONS

PROJECT: Sampling of bottom materials, Wood Island Harbor Channel

SITE: Wood Island Harbor, Biddeford, Maine

PROJECT: Exploration for obtaining sample of bottom sediment for environmental purposes.

1. SCOPE OF INVESTIGATIONS

a. General. Execute one drive sample boring to obtain bottom sediment sample.

b. Explorations.

- (1) The exploration shall be located within a five foot radius of the location shown on the plan by use of visual bearings and/or ranges with reference to points of land and/or navigational aids at the location shown on the attached plan.
- (2) Soil sampling shall be accomplished by the drive sample method using a 2-1/2 inch ID x 5 foot sample spoon sampling continuously until a depth of minus 11 feet MLW or refusal is reached, whichever is less. A 300-pound hammer shall be used to advance the sampler. The hole shall be cased to within one drive of the final sampling depth.
- (3) The depth of sampling shall be determined by the tide curve method. Sufficient casing shall be provided to stick up above the high water surface to allow for re-entry of the drilling tools and accurate depth measurements. In case the drilling platform has to be removed, the casing top shall be provided with a suitable day marker by day or an amber flashing light by night. All casing shall be pulled upon the completion of the work.
- (4) A geotechnical inspector shall provide telephone reports to Mr. Ron DeFilippo, Corps of Engineers, at tel (617) 647-8175 at least once per each working day. The alternate point of contact is Mr. Yuri Yatsevitch at tel (617) 647-8387.
- (5) All samples shall be delivered to the Corps of Engineers Headquarters in Waltham, MA. Sample delivery shall be coordinated with the Director, NED Materials & Water Quality Laboratory at tel (617) 647-8367/8392.

2. SITE CONDITIONS

The explorations shall be performed in the entrance channel to the pool at Biddeford near black can buoy No. 7. The tide range is around 10 feet and the depth of water below MIW is estimated 6.5 feet. The bottom sediment is expected to be granular.

3. COORDINATION

The Contractor will provide two weeks advance notice prior to the expected start up of explorations to the U. S. Coast Guard at (207) 780-3251. In addition, the Contractor shall provide at least five days advance notice to the Harbormaster, Mr. George Day at tel. (207) 282-0803 and to Mr. Ronald J. DeFilippo, Corps of Engineers at tel (617) 647-8175. The alternate Corps point of contact is Yuri Yatsevitch at tel (617)647-8387.

4. EXPLORATION NUMBERS

The boring as shown on Attachment No. 2 is designated FD-87-1.

5. COMPLETION SCHEDULE

Services under this delivery order shall start within fifteen calendar days after the receipt of the delivery order. Duration of the drilling effort is estimated to be one calendar day. The geotechnical report shall be submitted in draft form for review, to the Government, postmarked no later than seven calendar days after completion of the field work.

Government review will take approximately ten calendar days from receipt of the draft report. The final geotechnical report shall be submitted postmarked no later than seven calendar days after receipt of the draft report with Government comments.

6. QUALITY CONTROL

You will be held responsible for the quality of the maps submitted and for all damages caused the Government as a result of your negligence in the performance of any services furnished under the contract.

Although submissions required by your contract are technically reviewed by the Government, it is emphasized that your work must be prosecuted using proper internal controls and review procedures. The letter of transmittal for each submission which you make shall include a certification that the submission has been subjected to your own review and coordination procedures to insure (a) completeness for each discipline commensurate with the level effort required for that submission, (b) elimination of conflicts, errors, and omissions, and (c) the overall professional and technical accuracy of the submission. Documents which are significantly deficient in any of these areas will be returned to you for correction and/or upgrading prior to our completing our review.

Section 3

b. Project Site

The investigation took place at Biddeford, Maine in Wood Island Harbor. One probe and a grab sample of bottom sediments was taken from the harbor channel at Biddeford.

c. Purpose

The purpose of this investigation was to obtain a bottom sediment sample for environmental purposes.

d. Scope of Work

Inspection and exploration instructions, which were provided by the Army Corps of Engineers, New England Division, in Delivery Order No. 0002, are included in Section 3a. General inspection and exploration were provided by the Army Corps of Engineers, New England Division, through the contracted "Specifications for Services and Equipment Necessary for Conducting Geotechnical Exploratory Work, Various Locations in New England". Specific instructions and changes during the course of the work were given during telephone conversations through a Corps of Engineers representative. All new instructions and changes can be found listed in Table II of Section 5.

Work under this Delivery Order consisted of locating one (1) test boring by the use of visual bearings with reference to points of land and navigational aids at the location shown on the attached plan.

It was not possible to obtain bottom sediment samples with either a split spoon sampler or solid spoon sampler and ultimately a diver was used to obtain a grab sample of the bottom sediments.

Boring was performed by Atlantic Testing Laboratories personnel using Atlantic Testing Laboratories' equipment and subcontracted equipment. The boring was performed using a 140 lb hammer driving a 1 3/8" I.D. split spoon. Sampling was attempted using both a 1 3/8" O.D. split spoon sampler and a 2 3/8" O.D. solid spoon sampler advanced with a 140 lbs hammer (both methods were unsuccessful in retaining a sample even when a plastic bag was used in addition to plastic retaining basket in the sampling spoons). Grab sampling was done by a subcontracted diver. The grab samples were collected by the diver in 16 oz hermitically sealed jars.

Section 4 - Quality Control

a. General Certification Statement

I hereby certify that the records, equipment and procedures mentioned below were used to perform the subsurface exploration described herein. I also certify that the work was performed in a professional manner and meets the requirements set forth in the delivery order. This report has been subject to my review and is both complete and technically accurate.

CERTIFY November 30, 1987

Spenger F. Thew, P.E./L.S.

b. Records Taken

Pertinent drilling procedures, sampling operations, soil classifications and testing data were noted on the following forms provided for use by the Corps of Engineers:

NED 121 (Field Log of Test Boring) NED 58 (Field Log of Test Boring)

A completed log of the boring is included in Section 8 along with location maps.

Sample containers were labeled using ENG Form 1742 and were delivered to the USACE NED Materials and Water Quality Laboratory on December 1, 1987.

A Summary of Daily Activities and Telephone Log are Tables I and II of Section 5, respectively. A Chain of Custody Log is in Section 6. Safety meeting reports, NED Form 251, including exposure time for Atlantic Testing Laboratories', Corps of Engineers and subcontracted personnel, are located in Section 7.

c. Equipment Used

All equipment and supplies were provided by Atlantic Testing Laboratories, Limited, with the exception of that provided by subcontractors. A listing of pertinent equipment follows:

1. Drilling Equipment

- Drill rod AW size, in 2 ft, 5 ft, and 10 ft lengths
- Split spoon sampler 1 3/8" O.D. x 2 ft in length
- Solid spoon sampler 2 3/8" O.D. x 5 ft in length
- 140 lbs drive hammer

2. Subcontracted equipment and services

- 30' fishing boat "Cindy Lee", the "Cindy Lee" had a boom and cathead setup that facilitated the use of the 140 lb hammer in advancing the boring.
- A diver with Scuba equipment was used to obtain a grab sample of the bottom sediment.

d. Procedures

One boring was performed, however no sample was recovered, therefore a grab sample was obtained from the harbor channel at Biddeford. This involved locating the position of proposed sampling, positioning the boat "Cindy Lee" and executing the probing and grab sampling operations.

Using visual bearings with respect to reference points on land and navigation aids the boat the "Cindy Lee" was positioned for exploration. "Cindy Lee's" position for the sampling and probing operation was approximately 200' southwesterly of can bouy no. 7 which centered the probe in Wood Island harbor channel. "Cindy Lee's" position was held by the use of two Danforth anchors.

The drillers using the boom and cathead of the "Cindy Lee" and a 140 lb hammer attempted to obtain a bottom sediment sample with both a solid spoon sampler and a split spoon sampler, both types had 0% recovery. The split spoon sampler was driven to the desired depth using a 140 lb hammer. A diver using Scuba gear attempted without success to drive a 2' split spoon sampler into the bottom sediment and cap the end of the spoon to prevent sample loss. The diver then took eleven 16 oz. sample jars and filled them with bottom sediment.

SECTION 5

DAILY ACTIVITY AND TELEPHONE LOG

WOOD ISLAND HARBOR CHANNEL

TABLE I

CD028 - DAILY ACTIVITY LOG

Date

Activity

November 21 Saturday

- One site, Geologist 11:00 a.m. to 4:00 p.m.
- Weather winds 20-25 mph, sunny, temp. $40^{\circ}-50^{\circ}$ F
- Made site inspection to determine equipment needed and possible drilling conditions.

November 24 Tuesday

- On site drillers 10:30 a.m. to 5:00 p.m. Geologist 9:30 a.m. to 5:00 p.m.
- Weather winds 5-10 mph, sunny, Temp. ~50°
- Drillers, Surveyors, and Geologist mobilize to site
- Arrive on site and load the equipment on barge and proceed to drill site
- Located drill site using visual bearings with reference to points on land and can bouy no. 7
- attempted sampling with both 3" x 5' solid spoon sampler and 2" x 2' split spoon sampler without success
- drove spoon to desired depth could not recover soil since no material was retained in sampler
- attempted to modify split spoon sampler using plastic "baggie" without success
- set mooring bouy to identify location of attempted sampling
- came to shore and pick up diver, then return to site
- diver tried to push split spoon sampler into bottom sediments and tried to cap the end of the split spoon sampler as it was pulled out of the bottom sediments, without success
- send diver down with sample jars to obtain grab samples of bottom sediment, he took samples at location marked by mooring bouy previously set
- return to shore
- unload equipment
- meet with following USACE representatives, Mark Habel, John Smith, Sue Scott discuss Biddeford job with them, they seem to be pleased with results

WOOD ISLAND HARBOR CHANNEL

TABLE II

CD028 - TELEPHONE LOG

<u>Date</u>	Conversation
November 16 Monday	 D. Sanford to Mike Carrol; NED, Materials & Water Quality Laboratory re: sampling, handling D. Sanford to George Day, Biddeford Harbor Master D. Sanford to Jim Thew, ATL, purchase of USGS maps and discussed sampling and handling
November 17 Tuesday	 D. Sanford to Petty Officer Metcalf, USCG re: advance notice of drilling start up D. Sanford to R. DeFilippo re: scheduling of drilling, purpose of sampling D. Sanford to Brian Conaway USCG re: scheduling of drilling D. Sanford to G. Hargrave re: general briefing, scheduling
	- ATL, G. Hargrave to D. Sanford; D. Sanford had material on Biddeford sent to our Motel. D. Sanford also needs to know exact date that drillers will finish in Bass Harbor
November 18 Wednesday	- D. Sanford to R. DeFilippo re: sampling location, procedures purpose, waiver of specified 300 lb hammer. R. DeFlippo indicated that survey crew not required, ATL to get location of bouys in the immediate area
November 19 Thursday	 ATL, G. Hargrave to D. Sanford; Survey crew not needed in Biddeford; R. DeFilippo to D. Sanford; do not need to use 300 lb hammer G. Hargrave to D. Sanford; plan to finish in Bass Harbor on Friday and be in Biddeford, ME on Saturday If these days not possible, G. Hargrave to contact USCG, USACE, R. DeFilippo G. Hargrave to R. DeFilippo plan to be Biddeford on Saturday D. Sanford to Lt. Moore re: scheduling for Sat. 11/21, Sun. or Monday. D. Sanford to G. Hargrave re: sample recovery, make sure safety reports are submitted
November 20 Friday	- G. Hargrave to R. DeFilippo, USACE schedule set back due to bad weather at Bass Harbor; reschedule Biddeford for Tuesday (November 24)
	- G. Hargrave to D. Sanford; will not be done as planned.
	D. Sanford to P.O Metcalf, schedule set-backD. Sanford to George Day Harbor Master, Biddeford re; schedule set-back

November 23 Monday - D. Sanford to Lt. Com Moore, USCG, reaffirm Tuesday schedule

WOOD ISLAND HARBOR CHANNEL

TABLE II

CD028 - TELEPHONE LOG

Date

Conversation

November 24 Tuesday

- S. Chatelle to R. DeFilippo, USACE re: difficulty retaining sample and asked for suggestions. Paul L'Heureux on phone and suggests "baggie" in spoon; told him we tried that; P. L'Heureux canvasses others in office for ideas and said grab sample may be OK. S. Chatelle informed USACE that anchor sample was brought up, USACE said that anchor sample was not acceptable. Captain suggested the use of a diver. This was acceptable by R. DeFilippo
- G. Hargrave to Terry Wong; informed of difficulties in recovering sample. G. Hargrave told T. Wong a diver was on the way and diver's fee would be in the range of \$35-\$70 per hour. T. Wong suggests diver cap the split spoon sampler as it is pulled out of the bottom, or if that method does not work, obtain grab sample

SECTION 6

CHAIN OF COSTODY LOG



ATLANTIC TESTING LABORATORIES, Limited

CHAIN OF CUSTODY LOG

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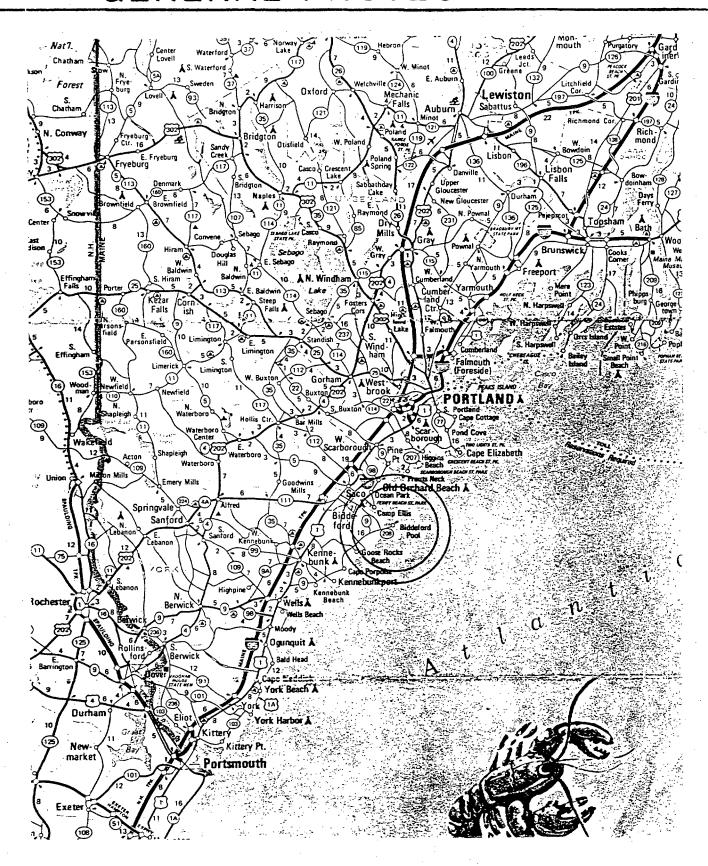
Section 7 - Safety Reports

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NEDSO		Date held November 24, 1987
THRU: Area Engineer, New Engle-	Area	Time A.M.
NO: Safety. Office, NED		Report No. D.o.
1. Weekly safety meeting was hel	d this date for the fo	ollowing personnel:
Contract No. /D.O.No. 1002	•	Testing Laboratories Ltd.
•	All personnel present	(Contr)
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/Individual Protective Equipmen	nt - saffy shoes, ha	ad hut's
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Fire Prevention -		
Sanitation, First Aid, Waste	Disposal -	
Tripping Hazards - trash, hos	e, nails in lumber - k	keep work area not, be careful arouns ste
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Hoisting Equipment -		
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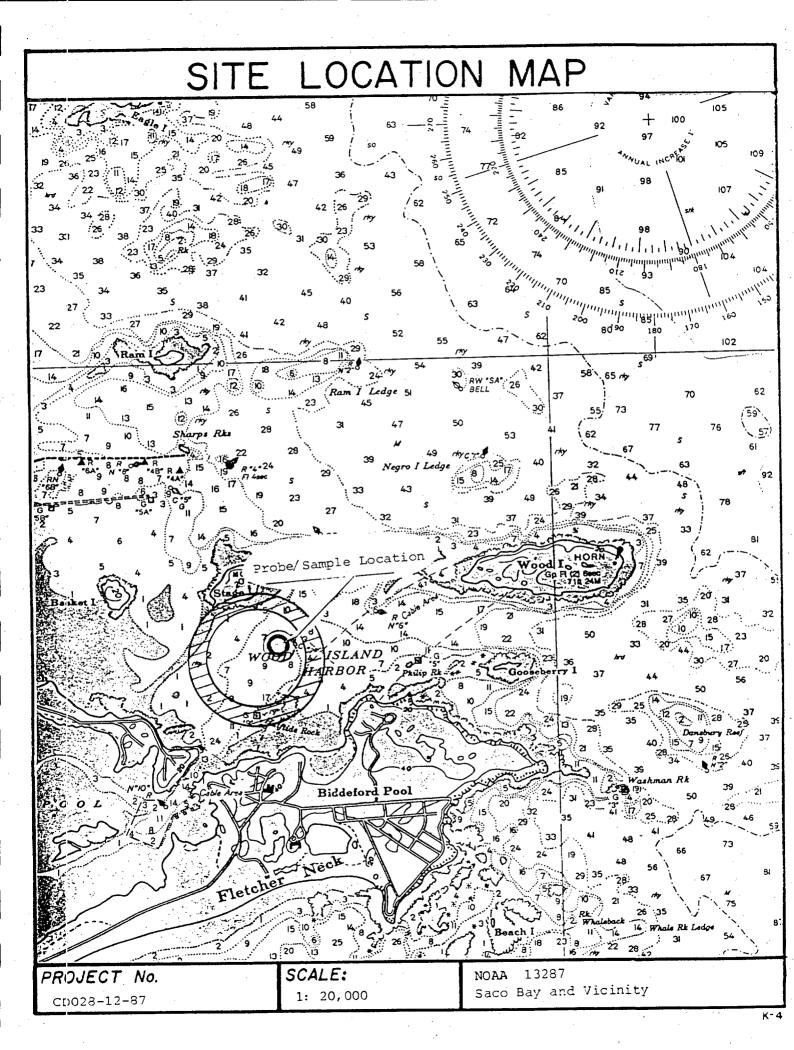
Section 8 - Field Inspector's Log

a. Figure 1 - General Project Map

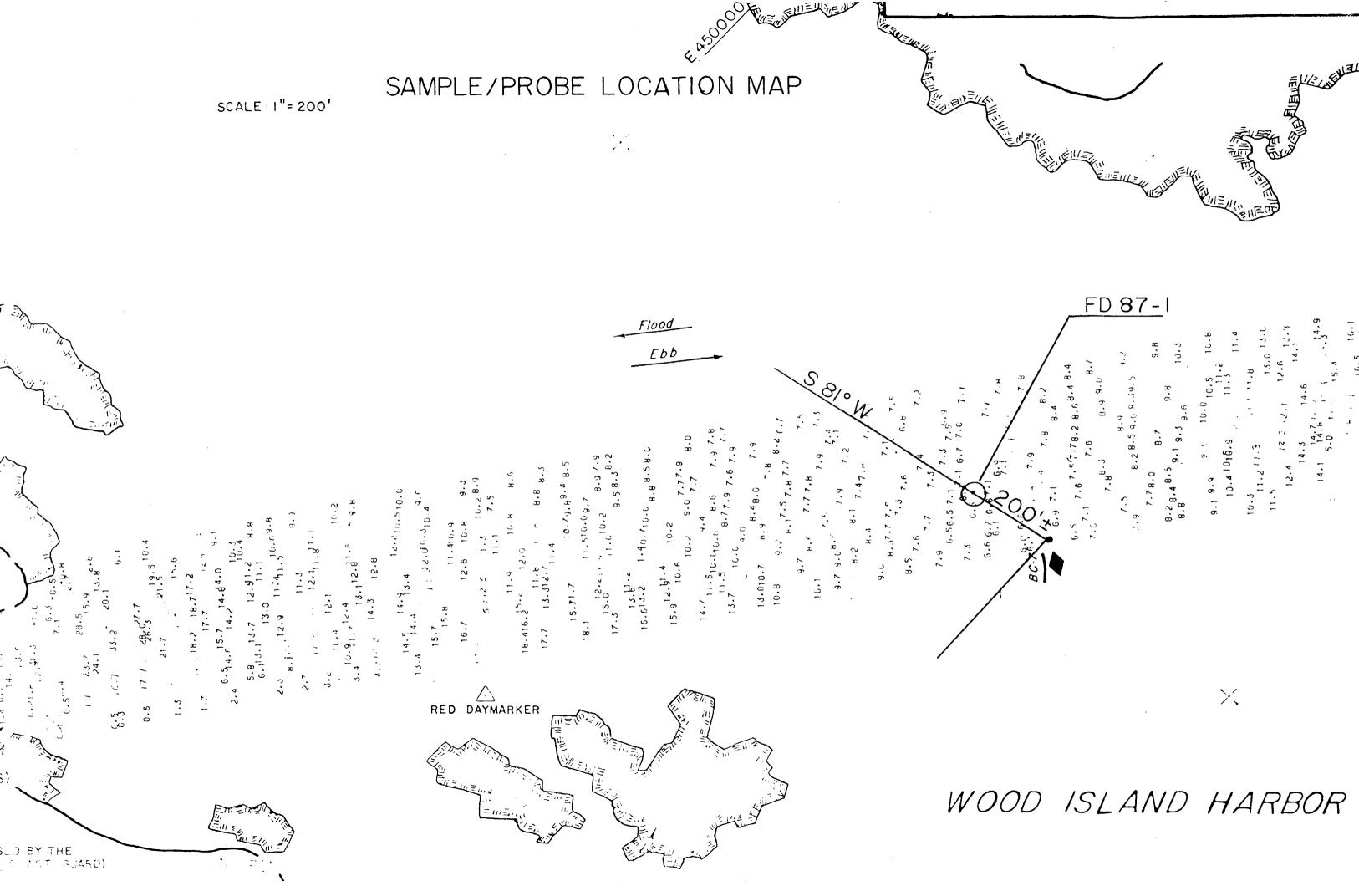
GENERAL PROJECT MAP



b. Figure 2 - Site Location Map



c. Figure 3 - Probe/Sample Location Map



d. Boring Log

CORPS OF ENGINEERS, U. S. ARMY NEW ENGLAND DIVISION FOUNDATION AND MATERIALS BRANCH FIELD LOG OF TEST BORING

PROJECT Site Wood Island Harber, Bidd ford Marie	NO. D.O. 000 = Page I of = Pages
Hole No. FD 87-1 Diam. (Casing)	Boring Started November 24, 1987
(o-ordinates: N 43'27'12" E 70°21'03"	Boring Completed November 24, 1987
Orilled by Cambridge + Gordon	Report Submitted November 30 1987
Furpose of Exploration Exploration for abtain	<u> </u>
Elevation Top of Hole6' (MLW) Total Overburden Drilled5' Feet	Casing Left in PlaceFeet
Elevation Top of Rock	
Core RecoveredFt.;Diamin. Soil Samplesin. DiamNo. Soil Samplesin. DiamNo.	Water Table Dooth <u>NA</u>
Depth Method of Drilling From To and Type of Bit Used -6 -11 136" I.D. salet spore sure from driven with 140 16s harmer	Bround Water Back of Page Boring Location Sketch Back of Page Overburden Record Page Rock Drilling Page Page Page Page
Propared by Gregor, P. Hangrave Substited by Atlantic Testing hal	boratorión Ltd.

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. 4	'	}						_
		} .						_
6	<u> </u>		ļ			24.44		_
	=	. .			301	Sampler was advance -6' mew to -11' mew using	Grey Fine SAND,	_
8		1			a	Sampler was a sounce - s	trace organic material	_
ه ا	-	1		0%	3	a 140 lbs. hammer, no	SP	F
	=	1		1	3	sample was retained with		_
14	<u>اٰ</u> اٰ	3		1	2	the split spoon sumpler		F
11	`↓ <u>-</u>]	 	 	1~			Е
1:	<u> </u>	1				Boring Terminated @ 11' below	Note: a diver obtained	E
	=	1				(M2 W) on 11/24/87	bottom sediment samples,	
1.	_ =	‡					after drillers attempted	E
'	4	1					to obtain bottom sedwart	F
	-	7					samples with both	F
10	<u>د ا د</u>]					2" and 3" O.D. sumpling	F
]					5,00005	E
							1	
GEI	VERAL	REM	ARK	S: ,	· low	Mean Low Water		
Da	PHAS	are 9	~ ~ ~ ~ ·					
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Section 9 - Other Records Taken

Portland, Maine, November 24, 1987 Times and Heights of High and Low Water